CONTENTS FOR
FLUID MECHANICS RESEARCH
Volume 21, Nos. 1-6, 1992

Number 1

1 An Experimental Study of the Unsteady Boundary Layer and Drag Reduction in It
V.A. Gudkov

10 Experimental and Analytic Study of Heat Transfer in Fixed Beds with Ordered Packing of Tubular Granules
V.Kh. Matushenko, Ye.V. Romancheva, B.M. Markeyev and Kh.Kh. Valiyev

23 Effect of the Length of the Separation Zone on the Completeness of Combustion in Supersonic Flows
V.L. Kraynev

28 Interaction between a Rotating Cylinder and a High-Concentration Fluidized Bed
I.A. Osintsev, V.N. Korolev and N.I. Syromyatnikov

34 Certain Inverse Problems for the Linear Boltzmann Equation
A.L. Ivankov

39 An Approximate Solution of the Plane Problem of Transformation of Waves in Flow Over Symmetrical Baffles
V.Ye. Verbitskiy, Yu.L. Vorob'yev and V.Yu. Mazur

48 Effect of Density and Energy Perturbations on the Generation of Various Wave Modes and on the Scattering of Internal Finite-Amplitude Gravity Waves. Analogy with Gyroscopic Wave
N.V. Saltanov, R.R. Yarish and P.A. Shestopal

56 The Effect of Average-Velocity Shear on the Development of Internal Waves
V.I. Nikishov

60 Conditions for the Existence of a Solitary Wave
A.A. Ryabenko

68 Impact of a Slender Elastic Cylindrical Shell on the Surface of a Fluid
V.V. Gavrilenko

76 Analysis of Behavior of a Turbulent Jet Spreading Along the Generatrix of a Cylinder
V.S. Maksimov and D. Adzhib

87 Numerical Investigation of the Macroscale Structure of Incompressible Viscous Flow Over Cylinders
G.I. Anikeyev, Ye.A. Kokarev and S.M. Perminov

95 Stability of Laminar Coaxial Flow Over a Semiinfinite Cylinder
L.V. Tkachenko and V.S. Chelyshkov

100 A Particular Case of Plane Cavitating Flow
V.T. Savchenko and N.Yu. Yeremeyeva

106 Two-Dimensional Motion That Particles of an Ideal Fluid Execute in the Velocity Field of a Vortex Pair
A.A. Gurzhiy and V.V. Meleshko

113 Classification of Interactions of a Vortex Pair with a Point Vortex in an Ideal Fluid
T.P. Konovalyuk

123 Isothermal Motion of a Gas Bubble (or Droplet) with Mass Transfer in a Rotating Fluid
A.S. Dudko

131 Some Special Cases of Flows Over Bodies
Yu.N. Savchenko

137 Distribution of Solids Across an Inclined Pipe Carrying a Slurry Flow
S.I. Kril', V.P. Berman and V.M. Kudryavykh

Number 2

1 Experimental Study of the Structure of Flow Over a Ribbed Wall
O.V. Tovbich
6 Effect of Viscosity on the Rate of Mass Transfer in Impingement of Droplets on a Wetted Wall
A.A. Shrayber, A.M. Podvysotskiy and S.L. Khelemskiy
11 Determination of Exact Droplet Size Distribution Generated by an Air Driven Nozzle
A.N. Korobochka and A.M. Pavlenko
17 Porosity of a Fluidized Desorber Bed for Separation of Pollutants from Effluent Gases
A.P. Nesenchuk, V.A. Sednin, D.I. Shklovchik and I.A. Bokan
23 The Optimal Velocity of the Fluidizing Air in a Fluidized-Transport Chute
V.Yu. Shuvalov, T.A. Lesnikova and B.V. Berg
29 Effect of the Length of the Supersonic Zone of a Nozzle with an Adjustable Throat Area on Its Performance
A.A. Garbuz and A.A. Moskalenko
35 Aerodynamics of Jet Produced by Rectangular Nozzles
K. Kuzov
44 Numerical Evaluation of Discontinuous Gas Flows
O.I. Seregina and V.P. Stulov
60 Pressure Drop Along Horizontal Segments of Pipelines Carrying Air-Streams with High Concentration of Pulverized Coal Under Pressure
L.A. Kesova, Hoang Tien Zung and A.F. Ugrimov
67 Expansion of Axisymmetric and Spherical Cavities, and Their Interactions
V.V. Serebryakov
80 Hydraulic Jump in a Prismatic Channel with a Trapezoidal Cross Section
V.N. Kozin
85 Pressure-Averaging Tubes as Head Sensors in Rectangular Ducts
K.F. Ivanov and A.G. Butenko
91 High Speed Impact of Elastic Cylinders on Water
V.A. Yeroshin

Number 3

1 An Acoustic Method for Measuring the Thickness of a Flowing Liquid Film
M.K. Bezrodnyy and Yu. Antoshko
6 Energy Performance of a Slotted-Disk Centrifugal Extractor
V.A. Shelimanov and M.M. Khodyker
12 Calculation of the Temperature of the Liquid in a Closed-Loop Hydraulic Network
S.D. Solod
16 Effect of Liquid Water Content of the Wet Steam on the Efficiencies of Various Types of Louvered Separators (Demisters)
L.S. Sterman, V.A. Devyanin and A.V. Rafaelyan
22 Gravity Flow of a Clay Suspension Down a Vertical Cylindrical Wall
Yu.Ye. Zverkhovskiy

29 The Effect of Longitudinal Variation of the Free Stream on Flows Separated from Notches in Bodies
O.D. Zaytsev
37 Unsteady Flow of Newtonian or Non-Newtonian Fluids Around a Rotating Vertical Cylinder
Yu.Ye. Zverkhovskiy
43 Thermodynamic Stabilities of Superheated and Supercooled Liquids
V.P. Skripov
51 Stability of a Metastable Van Der Waals Fluids: V. Phase Equilibrium in a Micro-heterogeneous Liquid-Vapor System
V.G. Baidakov and M.A. Simakov
70 Metastable States of the Liquid-Liquid Phase Transition in the Heptane + Methanol Miscibility-Gap System
G.I. Pozharskaya, Yu.D. Kolpakov, O.M. Lapteva, and V.P. Skripov
76 Aggregate State of Carbon Dioxide Dissolved (Absorbed) in a Polymer
E.I. Blednykh and N.I. Makarova
81 The Temperature Field Around the Moving Wetting Line Under Conditions of High-Rate Vaporization
P.A. Pavlov
89 p, ρ, T-Properties of Stable and Metastable Xenon Near the Liquid-Vapor Critical Point
V.G. Baidakov, A.M. Rubshteyn and V.P. Pomortsev
102 Experimental Determination of Thermophysical Properties on Gas-Solid Interfaces
S.F. Borisov, A.V. Nakaryakov and A.V. Nosov
107 Initiation of Flashing in Superheated Liquids by α-Radiation
I.M. Paderin, E.N. Sinitsyn and V.S. Uskov
112 Equation of the Free Surface in the Case of Three-Dimensional Distortion of a Potential Flow
L.I. Vysotskiy
115 Modeling of the Operation of a Vacuum-Type Deadman Anchorage
I.Ye. Zhernov, G.Ya. Yeremenko and S.V. Romanov
120 Experimental and Analytical Study of the Operation of a Vacuum-Type Deadman Anchorage in Soils of the Aeration Zone
G.Ya. Yeremenko
126 Turbulence Promoters for Air Conditioning Heat Exchangers and Dust Precipitators
A.P. Teslo and V.V. Pyrkov
131 Determination of the Longitudinal Dispersion Coefficient in a Free-Surface Unsteady Flow
Ye.V. Yeremenko
138 The Minimum Length of Straight Pipe Upstream of the Flowmeter. Flow-Averaging Pitot Tube Sensors
S.V. Mel'nik
141 Time Lag in Boiling of Binary Mixtures
E.D. Nikitin

Number 4

1 Bistability and Phase Transition in Flow Systems
V.P. Skripov
9 Phase Transitions Accompanying Joule Heating
P.A. Pavlov

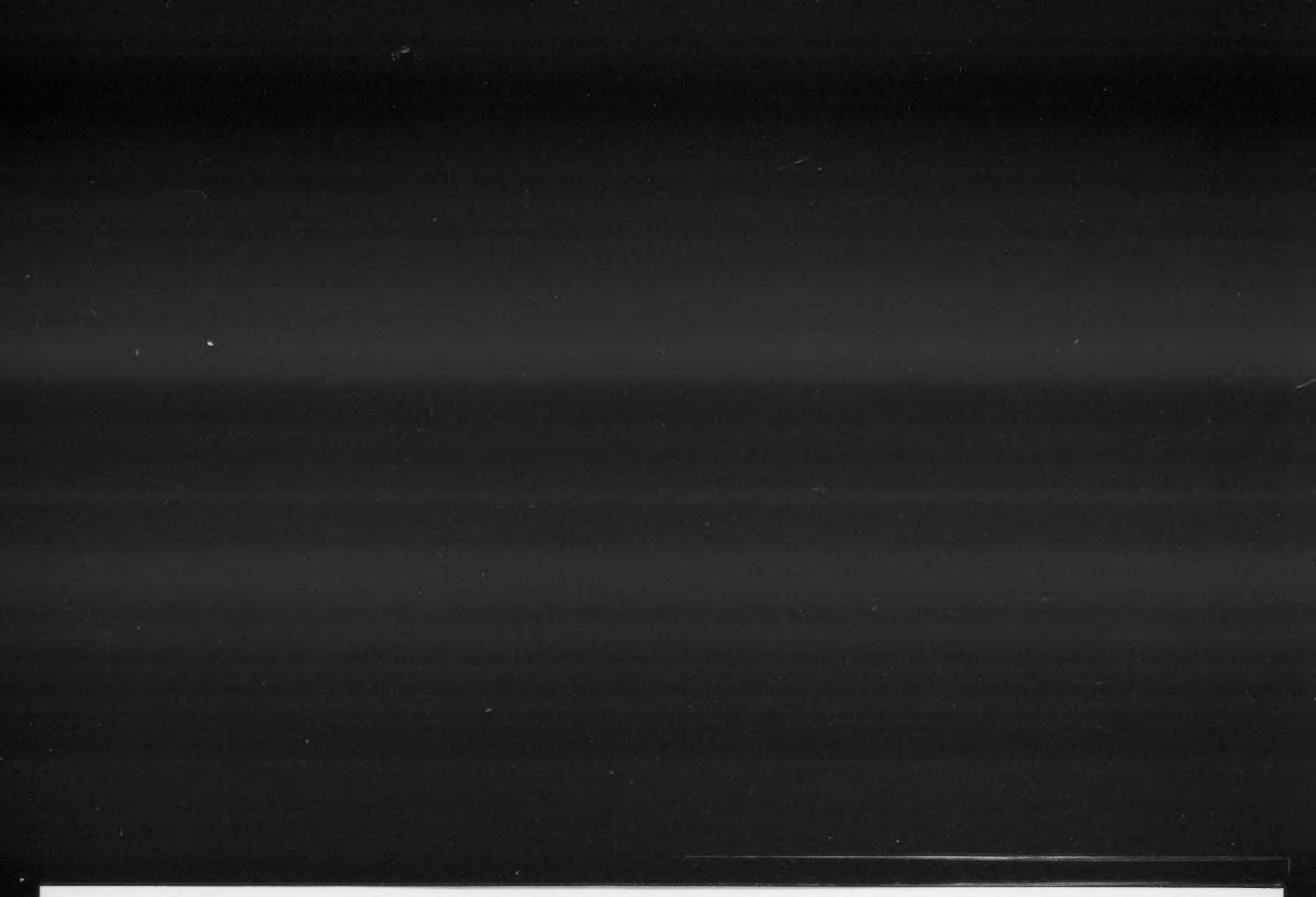
17 Equations for the Velocity of Sound That are Equally Applicable in Stable and Metastable Simple Liquids
V.G. Baydakov, A.M. Kaverin and T.A. Gurina
33 Experimental Apparatus for Studying Explosive Scatter of a Hot Liquid upon Sudden Rupture of Its Container
N.A. Mazhayko, O.A. Isayev and A.V. Reshetnikov
35 Flashing of Strongly Superheated, CO_2-Saturated Liquid Oligomers
P.V. Skripov, S.E. Puchinskis and N.V. Bessonova
43 Flashing of Decomposing Aqueous Solutions of Hydrogen Peroxide
A.P. Popov and Ye.D. Nikitin
50 Maximum Tensile Forces in *n*-Pentane
V.Ye. Vinogradov, S.V. Gizzatulina and Ye.N. Sinitsyn
55 Probability of Flashing of a Superheated Liquid upon Continuous Heating
Ye.N. Sinitsyn and V.B. Ivakin
59 Kinetics of Phase Separation in Critical and Noncritical Mixtures of Perfluoromethylcyclohexane with Carbon Tetrachloride
O.M. Lapteva, G.I. Pozharskaya and Yu.D. Kolpakov
65 Phase Separation in Polystyrene Gels
S.A. Vshivkov and Ye.V. Rusinova
72 Effect of the Thickness of Polymer-Blend Films on Their Phase-Separation Temperature
V.M. Andreyeva, A.I. Dolinnyy, A.B. Burdin, and Ye.A. Kozhevnikova
78 Random Oscillations of a Bubble in a Periodically Excited Pressure Field
S.N. Syromyatnikov
84 Application of Generalized Prandtl Equations to Steady, Viscous Pipe Flow
H.V. Prokhur and A.I. Ovsyannikov
91 Metastable States and Stability Limits of Binary Solutions
I.Yu. Ushenin and V.G. Baydakov
105 Mutual Solubility and Common Kinetic and Thermodynamic Properties of Binary Phase-Separating Mixtures
S.V. Kazakov, S.P. Samokhin and N.I. Chernova
109 Numerical Modeling of the Dynamics of Mooring Lines
V.A. Gorban' and M.E. Pol'shin
116 Variational Formulation of the Problem of Mooring (Anchor) Line Dynamics
A.F. Lyakhov
121 Cavitational Interaction of Towing Lines and Flow
Yu.I. Kalyukh and V.A. Kochin
125 A Caisson That Acts as a Wave Shield and Converts the Wave Energy to Electrical Power
V.V. Buryachok
133 Interaction of a Freely Falling Jet with the Bottom of a Tank and the Liquid Filling It
B.S. Gonchar, V.G. Glushchenko and A.I. Kravtseva
137 Effect of Envelopes of Ocean Waves on the Dynamics of Floating (Offshore) Structures
V.P. Boldin, A.I. Vesnitskiy and A.D. Semenov

Number 5

1 Macroscale Structures and Chaos in Highly Viscous Incompressible Flow in a Plane Rectilinear Duct
G.I. Anikiyev, M.D. Genkin and S.M. Perminov

7 Fall of a Rigid, Thermally-Conducting Sphere Through a Thermally Stratified Fluid
Ye.I. Nikiforovich and K.P. Dudchak
15 Maximum Dimensions of a Stagnant Zone of a Viscoplastic Fluid (Petroleum) Ahead of an Impermeable Stratal Inclusion
V.V. Vidyakin
19 Energy of Oscillations of Shear Flows in Stratified Fluids
A.A. Zaytsev
23 The Effect of Surface Tension on Cavities in a Ponderable Fluid
V.N. Buyvol and I.P. Shmakov
29 Dynamics of a Fluid-Activated Vibrational Impact System
K.A. Kondratovich, L.M. Tsentsiper and A.K. Komarovskikh
34 Experimental Study of Time-Varying Aerodynamic Breakup of Liquid Drops and of Drops Containing Solids
A.M. Podvysotskiy and V.V. Dubrovskiy
39 Vibrations of a Finite-Span Wing in Subsonic Flow at Short Distances from a Solid Wall
I.I. Yefremov and Ye.P. Lukashchik
46 The Complete Similitude of Turbulent Flows That are Similar in Terms of Their Reynolds or Froude Numbers
A.A. Ryabenko
56 Calculation of the Cross-Sectional Shape of a Jet Discharged into a (Deflecting) Cross Flow
Ye.V. Bruyatskiy and V.G. Kuz'menko
64 Structure of a Vertical Freely-Falling Jet Discharged from a Convergent-Divergent Nozzle of a Special Type
V.G. Glushchenko, B.S. Gonchar and A.I. Kravtseva
69 Non-Newtonian Flow in the Inlet Zone
O.M. Yakhno, Chuang Yeh Kao and B.A. Skochelas
74 Spatial Structures of Convective Flows in Stratified Rotating Media
S.N. Netreba
81 Potential Representations of the Solutions of Equations Describing the Dynamics of Nonideal Rotating Liquids
N.V. Saltanov and P.A. Shestopal
91 Effect of Relaxation of Viscous Stresses on Incompressible, Vortical Non-Newtonian Flow
O.N. Shablovskiy
96 Helical Vortices in a Rotating Ocean (Theory and Laboratory Experiments)
Ya.D. Afanas'yev and S.I. Voropayev
101 The Starting Velocities of Transport Capsules in Straight and Curvilinear Pipelines
V.P. Berman and V.V. Fadeichev
104 The Modes of Dynamic Instability of Strings in Coaxial Flow
V.I. Poddubnyy, N.V. Saltanov and Yu.Ye. Shamarin
110 Evaluation of Transverse Oscillations of a Long Slurry-Carrying Pipe Suspended from a Heaving Floating Marine Platform Subjected to Random-Wave Effects
V.S. Tikhonov
117 Nonlinear Effects in the Generation and Interaction of Packets of Harmonic Internal Waves
A.V. Kistovich, V.I. Neklyudov and Yu.D. Chashechkin
123 Interaction Between Surface Gravity Waves and Stepped and Sloping Structures
V.A. Belyayev and V.I. Fedotov
131 Linear Theory of the Effect of Unbroken Waves on Stepped and Steeply-Sloping Walls
V.V. Buryachok

139 Density of Carbon Dioxide Dissolved in Polymethyl Methacrylate
Ye.I. Blednykh and N.I. Makarova

Number 6

1 Changes in the Cross-Sectional Area of a Turbulent Jet in Crossflow
V.G. Kuz'menko
8 Vortex Shedding and Fluctuations of Velocities of Flows Over Bodies in General-Purpose Eddy Flowmeters
A. Markevičius, V.A. Ilgarubis and V. Katinas
16 Dynamics of Transitional Flow in a Curved Square Duct
P. Poškas and V. Šukys
29 Heat Transfer in and Dynamics of Gradientless Flows Over Curved Walls (A Review)
A.A. Khalatov, I.V. Shevchuk and A.A. Avramenko
52 Heat Transfer and Dynamics of Boundary-Layer Flow on Curved Walls in the Presence of Forced Perturbations (A Review)
A.A. Khalatov, I.V. Shevchuk and A.A. Avramenko
66 Characteristics of an Underexpanded Jet Generated by an Annular Nozzle
Ye.P. Dyban and A.I. Mazur
73 The Taylor-Görtler Instability in an Laminar Boundary Layer with a Gradient
A.A. Khalatov and A.A. Avramenko
78 Effect of Nozzle Discharge Conditions on the Turbulent Transport in Jets Impinging on Baffles: The Role Coherent Structures in the Jet
G.F. Gorshkov
100 Behavior of a Sphere in an Ideal, Uniformly Stratified Medium
V.A. Gorodtsov
107 Deformation of an Ellipsoidal Cavity in a Ponderable Liquid
V.N. Buyvol and Yu.R. Shevchuk
114 Two-Dimensional Description of the Asymptotic Field of Internal Waves in the Wake of a Moving Local Source
A.G. Stetsenko
124 Nonlinear Dynamics of a Gas-Liquid System Under High Frequency Acoustic Vibrations
I.A. Lukovskiy and A.N. Timokha
131 First Integrals of the Equations Describing the Dynamics of Suspensions
S.I. Kril'